

ABSTRACT OF THE DISCLOSURE

Collectors are provided on a pair of exhaust passages extending in parallel from an internal combustion engine respectively. Each of the collectors collects black smoke particles (unclean substance) included in exhaust gas. One of a pair of differential pressure detectors detects a first differential pressure between upstream and downstream of one of the collectors while the other differential pressure detector detects a second differential pressure between upstream and downstream of the other collector. Upon finishing a regeneration process of removing the black smoke particles in each of the collectors, a control computer estimates an exhaust gas flow rate of each of the exhaust passages based on the first differential pressure and the second differential pressure.